

REMARKS

Reexamination and reconsideration of this Application, withdrawal of the rejections, and formal notification of the allowability of all claims as now presented are earnestly solicited in light of the above claim amendments and remarks that follow.

Claim 1 has been amended to remove the phrase, "at least one resilient filler layer," and to insert the phrase, "a layer of a resilient filler interposed between the frame and the covering." Support for this amendment can be found in the originally filed application at the last paragraph of page 3 and the first paragraph of page 7, as well as the appended drawings. Claims 21-23 have been amended to replace the phrase "is adapted for deformation" with the word "deforms." Claims 1-3 and 5-30 are pending.

Rejections Under 35 U.S.C. §112

Claims 1-3 and 5-27 stand rejected under 35 U.S.C. §112, first paragraph, as allegedly failing to meet the written description requirement. Specifically, the Examiner argues the recitation "such that the insert directly interacts with the frame" is new matter. Applicant respectfully traverses this rejection.

Applicant submits that the application as originally filed, including the written description and the drawings, clearly supports claim language reciting that the insert directly interacts with the frame. For example, Applicant directs the Examiner's attention to the paragraph bridging pages 3 and 4 of the originally filed application. Such paragraph is reproduced below for the Examiner's convenience (with emphasis added).

These objects, as well as other objects that will be more apparent hereafter, are achieved, according to claim 1, by providing a viscoelastic support structure having improved energy absorption properties, **comprising a rigid or semirigid frame**, at least one layer made of a resilient filler, **a flexible covering** having a surface of contact with the user, **at least one gel insert interposed between the covering and the frame to interact therewith when the user exerts a stress thereon**, characterized by providing, on the insert and/or the frame and/or the covering, a plurality of protuberances and recesses with respect to a mid-surface adapted to facilitate the deformation of the insert, in a direction transverse to the stress

direction and/or essentially parallel to the mid-surface, to increase the energy that the insert is able to dissipate.

As seen above, the application discloses that the gel insert is interposed between the covering and the frame and that the gel insert interacts with the frame. Furthermore, the drawings and associated description fully support such direct interaction.

Figure shows the frame (component 3) and the gel insert (component 5). As seen in the figure, at least a portion of the gel insert (5) is in direct contact with the frame (3). The accompanying description at page 5 (lines 7-8) of the originally filed application states that structure includes “at least one gel insert 5 located upon the frame 3” (emphasis added). Thus, the gel insert is in direct contact with the frame.

In light of the above, it is clear that the claim language alleged by the Examiner to be new matter is actually plainly disclosed in the originally filed application. Figure 1 and its accompanying text plainly show that the gel insert is in direct contact with the frame. The paragraph bridging pages 3 and 4 of the application plainly states that the gel insert interacts with the frame. The noted paragraph further describes the interaction in terms of the deformation of the gel insert. Therefore, Applicant submits the present application does in fact provide full and proper support for the claim language, “such that the insert directly interacts with the frame.” Applicant thus respectfully requests reconsideration and withdrawal of the present rejection.

Obviousness Rejections

Claim 1, 2, 5-18, and 21-27 stand rejected under 35 U.S.C. §103(a) as allegedly being obvious over U.S. Patent No. 6,074,001 to Yates. Applicant respectfully traverses this rejection.

Claim 1 recites a viscoelastic support structure having the following components (with numbering added for clarity only):

- 1) a frame;
- 2) a flexible covering;
- 3) a layer of a resilient filler interposed between the frame and the covering;

- 4) at least one gel insert interposed between said covering and said frame; and
- 5) a plurality of protuberances or recesses on at least one of the insert and the frame.

The protuberances or recesses are aligned with respect to a mid-surface line along the length of the structure and are formed on the bottom surface of the insert or the top surface of the frame such that the insert directly interacts with the frame. Despite the Examiner's allegations, Yates does not disclose or suggest such a structure.

Yates is directed to a specific manufacturing method for preparing a bicycle saddle through non-labor intensive methods (column 1, lines 31-36). Thus, the bicycle saddle of Yates is described in reference to the manufacturing method. In fact, Yates claims bicycle saddles prepared according to defined methods. Applicant can thus understand that the Examiner may be confused by the description of the Yates saddle in terms of its method of manufacture. Nevertheless, Yates does not disclose or suggest each and every aspect of the presently claimed support structure.

One particular aspect of the structure of claim 1 that Yates fails to disclose or suggest is the layer of a resilient filler interposed between the frame and the covering. The Examiner alleges that Yates teaches a structure that includes at least one resilient filler layer. To explain this allegation, the Examiner has merely inserted the word "foam" in parentheses after the word "filler." Since the Examiner has pointed to no specific portion of Yates to support the allegation, Applicant cannot determine upon what basis the Examiner alleges that Yates teaches a layer of a resilient filler material.

Applicant does note that there are only three occurrences of the word "foam" in Yates. At column 2 (lines 15-23) and at column 4 (lines 38-41), Yates disclose that cavities may be formed in the elastomer and that the cavities may be filled with foam. At column 4 (lines 41-44), Yates discloses that foam pads (referencing component 82 in FIG. 7) can be used. As shown in FIG. 7, the foam pads are relatively small inserts that are positioned between the shell surface and the elastomer.

This disclosure of Yates around "foam" in no way discloses or suggests a layer of a resilient filler interposed between the frame and the covering, as presently claimed. As seen in FIG. 1 of the present application, the layer of resilient filler (component 4) fills the space

between the frame (3) and the covering (6). Neither the cavity fill nor the pads of Yates is a layer of a resilient filler material, as presently claimed.

The Examiner admits that Yates fails to teach protuberances or recesses aligned with respect to a mid-surface line extending at least partially along the length of the structure. Nevertheless, the Examiner shrugs off this failure as an allegedly obvious matter of design choice since such a modification would have involved a mere change in the size of the protuberances or recesses. Applicant disagrees.

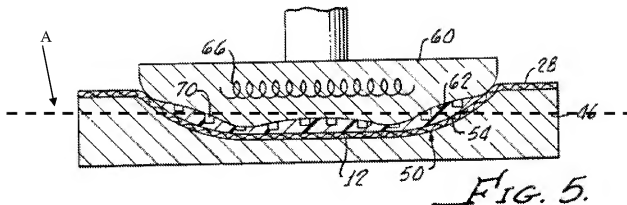
In alleging that Yates discloses a plurality of protuberances or recesses on its elastomer, the Examiner points to column 4 (lines 10-19) of Yates. Applicant believes the Examiner may be misconstruing the actual teaching of Yates.

At column 4 (lines 10-19), Yates teaches the use of a fixture that is used to form cavities in the elastomer. The fixture does not form part of the bicycle saddle, and it is the fixture that includes protrusions or pins. In essence, Yates teaches using the fixture to form cavities in the elastomer.

Yates teaches that the recesses may be formed for two purposes. First, the cavities may be sealed over to form air columns (column 4, lines 33-35). Second, the cavities may be filled with a foam material (column 4, lines 38-40). Yates does not provide any teaching around any alignment of the cavities along a mid-surface line.

The Examiner argues that a skilled person would change the size of protuberances or recesses in order to change the cushioning characteristics of the bicycle saddle. A mere change in size, however, would not inherently lead to a complete series of protuberances or recesses that are aligned as presently claimed. Rather, through much research, the present invention has realized that alignment, not merely size and/or shape, is useful. In particular, the particularly claimed alignment improves the ability to support and to absorb stress. Such stress absorption would not necessarily inherently arise from any combination of size and shape. Moreover, routine changes in size and/or shape would not inherently result in a complete series of protuberances or recesses that are aligned with respect to a mid-surface line extending at least partially along the length of the structure.

This is further illustrated through evaluation of FIG. 5 and FIG 6 from Yates. As seen therein, the recesses formed in the elastomer are formed in various different locations having different contours. For example, certain portions of the saddle (e.g., the perimeters of the saddle) are significantly higher than other portions of the saddle (e.g., the middle of the saddle). Given this orientation, it is possible to envision multiple instances wherein it would be impossible to form a saddle according to Yates wherein the cavities are aligned with respect to a mid-surface line. For example, as seen in FIG. 5 of Yates, the bottom of the outer most cavities (i.e., along the perimeter of the saddle) are significantly above the top level of practically every other cavity formed in the elastomer. Applicant has provided below a reproduction of FIG. 5 from Yates and has included an exemplary mid-surface line (dashed line A). As seen below in FIG. 5, it is impossible to provide a mid-surface line with which all of the cavities are aligned.



Altering the Yates saddle to arrive at a saddle having a gel insert with cavities that are aligned with respect to a mid-surface line would require significant alteration of the overall saddle structure (e.g., altering the saddle contour and placement of the cavities. Yates provides no direction for making such alterations. Thus, the Examiner's allegation that the presently claimed saddle could be achieved by simply changing the size or shape of the

cavities in Yates is incorrect. Given the contour seen in FIG. 5, it appears that no change in shape or size of the cavities would lead to the alleged result.

Applicant further submits that Yates does not specify that its cavities have surfaces extending along predetermined lines. Yates merely discloses that the cavities are spaced apart from one another and may have different depths. This does not disclose or suggest any specific alignment of the surfaces of the cavities.

Regarding claims 10-13, Applicant submits that Yates does not disclose or suggest a filler layer comprising at least one through cavity. The Examiner alleges that Yates discloses a filler (foam) layer comprising at least one through cavity, pointing to FIG. 6 and column 4, lines 39-42). The Examiner is incorrect in several points.

First, as previously pointed out, the foam material of Yates does not form a true layer. Second, the foam material of Yates does not form an enlarged rear portion, a front horn portion, and a central portion. Rather, the foam material is used to fill the discrete cavities or as small inserts. Third, Yates does not disclose any foam layer having a through cavity. Rather, Yates discloses foam used to fill cavities and also disclose foam inserts that are free of cavities. Fourth, the cavities Yates does describe are not formed in a resilient filler layer and are not through cavities. A skilled person viewing the present application would understand that a through cavity is one that extends fully through the layer in which it is formed. As seen in FIG. 2 of the present application the through cavity (17) exists from the frame to the covering. This is not the case with Yates. The cavities formed in the Yates elastomer are finite. This is evident in FIG. 5 of Yates, wherein the pins used to form the cavities do not extend completely through the elastomer layer. Moreover, Yates nowhere discloses that tunnels rather than cavities could be formed.

Regarding claim 18, the Examiner argues the phrase "is integral" is a method of production and is thus not germane to the issue of patentability of the product itself. Applicant respectfully submits the Examiner has misapplied the law in the present case. MPEP 2113 (cited by the Examiner) relates to product-by-process claims. Yates, for example, uses product-by-process claims in claiming its saddle. Present claim 18 is not a product-by-process claim. The use of the term "integral" does not *per se* make the claim a

product-by-process claim. It is possible to envision numerous characteristics of a product that may be the result of the manufacturing method used; however, they are still actual, physical characteristics of the finished product. Claim 18 does not recite any method step. Claim 18 does not recite forming the covering such that part of the covering is integral. It is simply improper for the Examiner to apply the standard of review for a product-by-process claim to a claim (in this case, claim 18) that is not a product-by-process claim. Claim 18 recites a structure having a specific characteristic that can be completely independent of any specific method used to prepare the structure.

Regarding claim 27, the Examiner incorrectly alleges that the frame of Yates has at least one through hole covered by a polymer layer. Column 4 (lines 45-51), which is cited by the Examiner, discloses that the elastomer layer has cavities and that a heated plastic saddle shell is pressed onto the elastomer to bond the elastomer to the shell and seal the cavities. Thus, the cavities are not formed in the saddle shell. Moreover, Applicant again points out that the cavities disclosed in Yates are not through cavities.

In light of the foregoing, Applicant submits Yates fails to disclose or suggest each and every aspect of the presently rejected claims. Accordingly, Applicant respectfully requests reconsideration and withdrawal of the present rejection.

Claims 3, 19, and 20 stand rejected under 35 U.S.C. §103(a) as allegedly being obvious over Yates in view of U.S. Patent No. 6,739,656 to Yu. Applicant respectfully traverses this rejection.

As previously pointed out, Yates fails to disclose or suggest each and every aspect of present claim 1. As claims 3, 19, and 20 each depend from claim 1, Applicant submits Yates also fails to disclose or suggest each and every aspect of the presently rejected claims. Accordingly, Applicant requests reconsideration and withdrawal of the present rejections.

In addition to the above, Applicant respectfully directs the Examiner's attention to new claims 28-30. New claims 28 further describes the structure of claim 1 by reciting that the layer of the resilient filler includes a rear portion, a central portion, and a front horn portion. Yates does not disclose this subject matter. The Yates saddle includes a covering, an elastomer layer, and a shell. Foam may be used to fill cavities or as small inserts, but Yates

does not disclose an actual layer formed of a resilient material (in addition to the covering and the elastomer material) and does not disclose that such layer is present in a rear portion, a central portion, and a front horn portion.

Claim 29 further describes this structure by reciting the presence of a through cavity formed on the rear portion or the central portion. As noted previously, Yates does not disclose any through cavities, only finite cavities.

New claim 30 recites a viscoelastic support structure with improved energy absorption comprising:

- a frame;

- a flexible covering having a contact surface for contact with a user;

- a layer of a resilient filler interposed between the frame and the covering and having a through cavity;

- at least one gel insert interposed between the covering and the frame in the through cavity of the resilient filler layer; and

- a plurality of protuberances or recesses on at least one of the insert and the frame.

Further, the protuberances or recesses are aligned with respect to a mid-surface line extending at least partially along the length of the structure. Still further, the insert comprises a bottom surface facing toward the frame, and the frame comprises a top surface facing toward the insert. Moreover, the protuberances or recesses are formed on one of the bottom surface of said insert or the top surface of the frame such that the insert directly interacts with the frame.

Yates fails to disclose or suggest such a structure. Yates simply does not disclose all of the above components in a single support structure. Yates specifically does not disclose a resilient filler interposed between the frame and the covering and having a through cavity and having a gel insert interposed between the covering and the frame in the through cavity.

Accordingly, Applicant submits claim 30 is patentable over the presently cited documents.

Applicant respectfully submits that all claims, as now submitted, are in condition for immediate allowance. Accordingly, a Notice of Allowance is respectfully requested in due course. If any minor formalities need to be addressed, the Examiner is directed to contact the undersigned attorney by telephone to facilitate prosecution of this case.

It is not believed that extensions of time or fees for net addition of claims are required, beyond those that may otherwise be provided for in documents accompanying this paper. However, in the event that additional extensions of time are necessary to allow consideration of this paper, such extensions are hereby petitioned under 37 CFR §1.136(a), and any fee required therefore (including fees for net addition of claims) is hereby authorized to be charged to Deposit Account No. 16-0605.

Respectfully submitted,

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